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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/756,874	01/10/2001	Hiroshi Kanou	Q62541	6216

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EXAMINER

NGO, HUYEN LE

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 04/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/756,874

Applicant(s)

KANOU ET AL.

Examiner

Julie-Huyen L. Ngo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 16-24 is/are pending in the application.
- 4a) Of the above claim(s) 11-15 and 25-48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 16-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3-5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of group I in Paper No. 6 is acknowledged.

The traversal is on the ground(s) that the apparatus and method of making the apparatus constitute a single inventive concept and will not be burdened by examination of both Groups I & II.

This is not found persuasive because the LCD apparatus as claimed could be made by another method, which can produce a convex/concave structure by replication of molding an insulation film. Furthermore, the search required for Groups I & II are in different classifications.

Therefore, it would be burdened on the Examiner to exam both Groups for the reason set forth above and the requirement is still deemed proper.

Applicant further elected **without** traverse of Species A in Group I (Figs. 1-2, claims 1-10, 16-32) in Paper No. 6 is acknowledged.

However, claims 25-32 read on a nonelected Species since claim 25 recites "the insulation film is a single layer structure and has the convex/concave structure formed separately on the surface of the insulation film," which drawn to Figs. 4 d-f of the Second Embodiment.

Accordingly, claims 11-15 and 25-48 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Species, there being no allowable generic or linking claim.

Priority

Receipt is acknowledged of paper submitted under 35 U.S.C. 119(a)-(d), which paper has been placed of record in the file.

Information Disclosure Statement

The information disclosure statements filed of record (paper nos. 3-5) have been considered.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The abstract of the disclosure is objected to because it not clearly states which is new in the art to which the invention pertains as claimed. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5-7, 9-10, 16-18, 20, 21 and 23-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura et al. (US5691791).

Nakamura et al. teach (Figs. 27 and 37A) a reflective liquid crystal display (LCD) apparatus comprising:

- a transparent first substrate 3;
- a transparent electrode 10 arranged on the first substrate;
- a second substrate 2 (Fig. 1, first example or Fig. 17, second example in the same invention);
- a switching element arranged on the second substrate;
- an insulation film/polymer resin layer 115 arranged on the switching element and having a convex/concave structure;
- a reflection electrode arranged on the insulation film along the convex/concave structure and connected to the switching element;
- a liquid crystal layer sandwiched between transparent electrode of the first substrate and the reflection electrode of the second substrate;

wherein

- the insulation film protects the switching element after formed and the convex/concave structure is formed by irregular arrangement of regions having different thickness values
- the convex/concave structure has a continuous smooth shape (claims 2 and 18)
- the insulation film is a single-layered film made from a single material (claim 3 and 17)

- the convex/concave structure has a plurality of protrusions arranged irregularly (claims 5 and 20)
- the protrusions have an island shape or a line shape in a plan view (claims 6 and 22)
- the convex/concave structure has a plurality of indentations arranged irregularly (claims 7 and 21)
- the convex/concave structure is formed by repetition of an irregular convex/concave shape based on one or more than one pixels (claims 9 and 23)
- the insulation film is made from an organic resin (claims 10 and 24).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5-10, 16-18 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US5691791).

Nakamura et al. teach (Fig. 27) forming a reflective liquid crystal display (LCD) apparatus comprising:

- a transparent first substrate 295;
- a transparent electrode 297 arranged on the first substrate;

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- a second substrate 281 as Fig. 1 shown (first example) or as Fig. 17 shown (second example in same invention);
- a switching element arranged on the second substrate;
- an insulation film (polymer resin layer 292) arranged on the switching element and having a convex/concave structure;
- a reflection electrode 288 arranged on the insulation film along the convex/concave structure and connected to the switching element;
- a liquid crystal layer sandwiched between transparent electrode of the first substrate and the reflection electrode of the second substrate;

Wherein

- the convex/concave structure has a continuous smooth shape (claims 2 and 18).
- the insulation film is a single-layered film made from a single material (claim 3 and 17).
- the convex/concave structure has a plurality of protrusions arranged irregularly (claims 5 and 20).
- the protrusions have an island shape or a line shape in a plan view (claims 6 and 22).
- the convex/concave structure has a plurality of indentations arranged irregularly (claims 7 and 21).

- the convex/concave structure is formed by repetition of an irregular convex/concave shape based on one or more than one pixels (claims 9 and 23).
- the insulation film is made from an organic resin (claims 10 and 24).

With respect to claim 1, Nakamura teaches (Fig. 37a) forming a reflective liquid crystal display (LCD) apparatus having convex/concave structure formed by irregular arrangement of regions having different thickness values for selecting various shape.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. as applied to claims 1 and 16 above, and further in view of Ebihara et al. (US5990995A).

Ebihara et al. teach (Fig. 5D, col. 16 line 5-16) forming an insulation film 5 having a light absorption characteristic below the reflection electrode 8 for preventing the double reflection.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify Nakamura et al. reflective LCD

apparatus with an insulation film having a light absorption characteristic for preventing the double reflection below the reflection electrode.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Kimura (US5610741A) discloses a reflection type liquid crystal display device with bumps on the reflector.

Minoura et al. (US6108064A) disclose a reflective-type liquid crystal display device with bumps on the reflector.

Kijima et al. (US6259500B1) disclose a liquid crystal display device with a reflection electrode region provided in the display region for each of the pixel electrodes.

Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Julie-Huyen L. Ngo whose telephone number is (703) 305-3508. The Examiner can normally be reached on T-Friday.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Mr. Robert H. Kim can be reached at (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-4709 for regular communications and (703) 746-4709 for After Final communications. Please contact the Examiner before faxing any paper to the Office.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

April 19, 2003



Julie-Huyen L. Ngo
Patent Examiner
Art Unit 2871